Sick Headache. See page 266.

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HEALTH

A WEEKLY JOURNAL OF

DOMESTIC AND SANITARY SCIENCE.

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EDITED BY DR. ANDREW WILSON, F.R.S.E. &C.

VOL. XIV.—No. 355. FRIDAY, JANUARY 24, 1890. [PRICE TWOPENCE.

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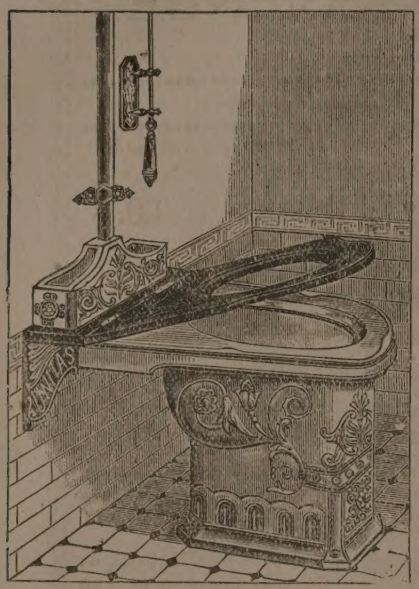

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• HEALTH •

EDITED BY

DR. ANDREW WILSON, F.R.S.E., &c.

LONDON: *FRIDAY, JANUARY* 24, 1890.

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Notes by the Way

BY THE EDITOR.

"Health is the foundation of all our physical happiness."—*Herder.*

ANTI-VACCINATORS are proverbially sure of everything which accords with their own views. Let them ponder over the following point:—"In the London small-pox hospitals in a series of recent years there were 655 nurses employed who had never had small-pox. Of these 645 were re-vaccinated before beginning work, and ten were not. Not one of the 645 took small-pox, but every one of the ten took it. Let a Cambridge mathematician tell us the exact number of chances there are that this was all accident, and that the re-vaccination had no share in the matter. And what will all the evidence that comparative pathology can produce or suggest weigh against the reply he would give us?"

DOUBTLESS Mr. Milnes, or some of his friends, will be able to explain away these facts; but, like the other fact, that in the German army small-pox is practically unknown (this army being the best vaccinated on the face of the earth), common sense and science alike will refuse to credit anything else than the power of vaccination as protective of humanity against small-pox. If it be maintained that small-pox has decreased in the German army, or anywhere else, through attention to general sanitation, I would suggest that we will require an explanation why scarlet fever, measles, typhoid, and the like, have not similarly decreased? One thing is certain, that we have frequent epidemics of scarlet fever, often very fatal, but we have not small-pox, either as single cases or as epidemics, in such abundance. Something has checked small-pox which has not checked scarlet fever, and that something can be vaccination alone.

I OBSERVE that Dr. G. Leslie, of Falkirk, has placed on record a remarkably simple method of curing neuralgia and kindred ailments affecting the head and face. His remedy is the application of common salt. His results, as he aptly remarks, "appear to be important, and to show, indeed, that many of the most distressing and acutely painful ailments to which we have been supposed to be heirs—such as neuralgic headache, faceache, toothache, earache, and allied complaints—are, in the great majority of cases, unnecessary, and that a beneficent nature has provided for them, to the rich and poor alike, an effectual remedy.

"FOR all the cases of this nature which have come under my care," says Dr. Leslie, "a uniform treatment has been followed. It has been the application of powdered chloride of sodium—common table salt—to the nasal mucous membrane. The salt may be used by the patient as snuff, a pinch being taken into the nostril of the affected side, and in many cases I have found this to be effectual in preventing recurrence; but the best results have been got when the salt has been applied by means of an insufflator. In practice I charge a small insufflator, the chamber of which contains about four grains, and ask the patient to draw air up the nostril while I inject the contents. It will be found that the application produces little pain or discomfort.

DR. LESLIE'S remedy has, therefore, the merit of extreme simplicity. He says that "the mode of disappearance of the neuralgia is noteworthy. So unattended is it by any form of shock or other unpleasantness, that though the patient may be suffering from intense pain one minute and be absolutely free from it the next, it is generally somewhat longer before he can realize his altered condition, and he usually employs a short time in introspection before announcing the favourable result." Dr. Leslie adds that although a single application usually suffices for the immediate stoppage of neuralgia, especially when it is recent and localized in one branch of the fifth nerve, in other cases, where the disease has been of long standing and of extensive distribution, he has sometimes had to continue the application of the salt for some minutes. But the remedy is one which can be applied by any one; and as it has already succeeded in curing many cases of severe neuralgia, &c., it appears to be nothing less than a veritable boon to suffering mankind.

To make walnut hair-dye, I may say in reply to a correspondent the following is a method: Take six ounces of green shells of walnuts, bruise them, and put them in a stoneware or glass bottle, and pour over them twenty-four ounces, or about a tablespoonful less that a pint and a quarter, of proof spirits—brandy, gin, rum, or whisky will answer. Close the bottle or vessel well and let the mixture digest for six days, during which time it must be frequently well shaken, three or four times a day at least. On the seventh day let it settle and draw off the clear liquor, or strain it through flannel, and perfume it with oil of lavender according to taste. Apply with a sponge to the hair. The resulting dye is brown and harmless.

SPEAKING of the sensibility to pain in the Arab and Negro races, the *Lancet* says that the war in the Soudan has helped to confirm the old impression that wild Arabs and Negroes are very indifferent to death, but this indifference is undoubtedly due in great part to the doctrines of Mohammedanism, which promise a certain and immediate paradise to all Moslim, who fall in action with the Giaour. That the Arabs, and above all the Negroes, are

far less sensitive to pain than Europeans and Americans, there can be no doubt. Dr. Felkin, in the course of a paper read before a society in Edinburgh, observed that when he first operated on Arabs and Negroes he found that both races bore pain remarkably well. The Arabs underwent operations with extreme fortitude. Dr. Felkin held that fortitude to be a disregard of pain induced by custom and training, and due also to peculiar mental characteristics, which may be expressed by the terms self-control, self-repression, or dogged endurance.

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With the Negroes, the cause of their stoical indifference to pain appeared at first sight quite different from the cause of Arab fortitude. They appeared to have hardly any dread of pain. Dr. Felkin was determined to find an explanation for this fact if possible. He tried, by a series of observations, to ascertain whether the general sensibility of the Negro was equal to or less than that of the average European, and found that the relative tactile sensibility of Europeans, Arabs, and Negroes was roughly in the proportion of one, two, and three. Dr. Felkin afterwards discovered that, as a result of education, the acuteness of touch in Negroes was increased by one-third. The uncivilized Negro, again, has less anticipation and consciousness of physical pain, owing to the less sensitive nature of the nervous system.

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People who are troubled with neighbours who thump and bang on the piano from morning till night will sympathize with plaintiff in the following case which is thus referred to by a medical contemporary:—A good many Londoners will await with much interest the decision of a case which was before Mr. Justice Chitty on December 6th. The owners of some flats in Westminster applied for an interim injunction restraining one of their tenants from playing a piano, violoncello, or any other musical instrument so as to annoy any of the plaintiffs' other tenants. It was stated that the son of the defendant, who occupied one of the flats, desired to become a professional musician, and practised on the violoncello from eight in the morning till ten at night, with certain intervals, when he practised on the piano, and a daughter and her governess also played on the piano. Such perseverance as this young man's appears to indicate a real liking for music, but how many hapless girls, without any ear for music, are daily condemned to spend weary hours in acquiring an art which they will hasten to abandon when liberated from parental control. It is a wearisome penance to the children themselves, wasting their energies, and tending to produce a condition of nervous irritability. In a crowded city the habit of practising scales and exercises for hours at a time is, we venture to say, without using the form in a legal sense, a nuisance to everybody within earshot. It has, however, even more serious consequences, for we have but too often to note how the quiet and repose so much needed in sickness is destroyed by the slavish adherence to this antiquated fashion.

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It requires but little time to grate several cakes of chocolate when not in a particular hurry, and, being so easily and quickly served in many ways when in this condition, housekeepers will often find it convenient when otherwise the time and trouble required to prepare it would no doubt often prevent the appearance of a dainty dish. It should be kept in tight jars to preserve the flavour.

Original Essays

"Life is not to live, but to be well."—*Martial.*

A NEW ERA IN STREET CLEANSING.

It is, of course, universally admitted that both public and private health stands in a very direct relation to cleanliness of ourselves and our surroundings. Whatever ideas may once have prevailed respecting "the sanctity of dirt," it is obvious that nowadays we are duly inclined to regard dirt as being decidedly "matter in the wrong place." Due cleanliness of body, of clothes, and of our houses is regarded, and rightly so, as the very foundation of health. We know that many diseases (among them diphtheria and typhoid fever) are styled "filth-diseases," because their germs breed and grow in the fœtid matter of drains and other receptacles; so that disease-prevention is very justly considered by sanitarians as being largely based on the removal from the abodes of men of all decaying and decomposing material.

What holds true of our homes also applies with equal force to our streets. The highways of a city may be compared to so many great channels, up and down which air-currents pass, and out of which matters of various kinds are liable to be absorbed by the atmosphere. For example, if we reflect upon the state of our streets in summer—to say nothing of their winter condition—we may readily note how the cleansing of thoroughfares must stand in a very direct relation to the public welfare. The mud and dust of the streets in due course become dried by the hot weather into a fine powder. This powder, in addition to containing a large proportion of mineral particles, also holds, included in its substance, much organic matter. This matter consists essentially of the refuse of animal and plant bodies, and it is also represented, needless to say, by the many living spores and germs (some of them disease-producing) with which the atmosphere of towns literally teems. Diffused through the air, these matters are fraught with injurious results to mankind. That the floating dust of the air is a nauseous compound which possesses the power of inducing disease is no mere theory, but sober fact. It is not a pleasant thought in any sense to reflect that day by day dwellers in cities are forced to inhale and to swallow much organic *débris* derived from the streets. Yet there is no denying the fact of our being subjected to such an ordeal, and that in consequence much disease is scattered broadcast.

A proper system of street-conservancy thus becomes a necessary condition of public health. If we think of the state of London or other thoroughfares either in winter or in summer, when the dust of the streets has become converted by rain or snow into liquid mud, and when this in turn has been moulded into thick masses of black mud-paste by the traffic, we can understand how much of our comfort and health depends on the effective and speedy cleansing of the streets. In London, and elsewhere, the removal of this mud appears to overtax all the resources of vestries or other bodies charged with the cleansing of the highways. A staff of men armed with brooms and scrapers toiling painfully and slowly to clean a long and busy street, is a sight only too familiar to Londoners at large. When snow falls, little is it to be wondered at that the whole street-traffic is disorganized. No attempt, as a rule, is ever made to deal with the snow when it has newly fallen, and when, before it has become sodden and hard, it can be readily removed. Then, also, in the ordinary process of street-cleaning by brooms and brushes

we see how the air becomes charged with the deadly organic matter. The dust is swept into the air as well as into the carts engaged in its removal, and air-pollution results as a necessary consequence of this primitive method of dealing with street-waste.

Fortunately, however, mechanical ingenuity has come to the front in aiding this great work of preserving public health by preventing air-contamination from the dirt of our streets. In the shape of the "Hercules Street Cleansing Machine" a real boon is at last offered to vestries and local authorities for dealing effectively and cheaply with the removal of street-dirt, and for cleansing our thoroughfares in a most effective manner. It may be premised that the "Hercules" machine deals as effectively with snow as with mud; that it will clean granite-paved roadways equally with macadamized streets or with asphalt and wood-laid thoroughfares. It combines in itself the functions of the water-cart and the scavenging staff; and is thus a machine which, in respect of saving labour and of perfectly discharging a difficult task, has no equal as a piece of sanitary mechanism.

A brief description of the "Hercules Street Cleansing Machine" may here be given. Mounted on a cart framework, we find first of all a circular water-tank, which holds about 300 gallons. The cart is three-wheeled, two wheels being placed in front and one behind. A pipe which supplies a sprinkling-tube runs across the front of the machine. Beneath the tank behind we find a screw-shaped India-rubber roller, which rotates on the ground in an opposite direction to the wheels of the cart. It is this roller which, by its special construction, aided by the flushing action of the water, effectively scours the street, and cleanses it of mud. The driver regulates, from his seat, the action of the India-rubber roller, and also the water-valve; so that he is the only person required to work the machine. As regards the horse power required, one horse is sufficient for wood-paving and for asphalt on the level; but two horses are needed for inclines or for granite or macadamized roads.

Seen in action, we find the "Hercules" first of all softening the hard mud or moistening the dust by its water-jets, which play in both backward and forward directions. Then we see the mud swept into the gutters by the action of the roller, leaving the street-surface absolutely clean and free from all impurities. The water, containing all dirt that will float, as well as the organic refuse or manure, so obnoxious and injurious to health, runs off into the gutters; while the residue (such as grit, gravel, sand, &c.) is left to be duly carted away. As regards the powers of the "Hercules," it may be mentioned that it is capable of cleansing 7,250 square yards per hour—a feat in cleansing which has been amply testified to by the evidence of experts. A small hand "Hercules" machine for side-walks and pavements will clean 1,450 square yards per hour. In the case of the removal of snow, salt is mixed with the water in the tank, and the melting process is thus effectually carried out, without producing that general damp condition of the streets unfortunately familiar to denizens in towns during the winter months.

Practical testimony in favour of what we regard as one of the most valuable sanitary inventions of modern times has already been given by Mr. W. Iron, surveyor to the St. James' and St. John's Vestry, Clerkenwell. Reporting to his Works Committee, Mr. Iron says, "I beg to report that I inspected the cleansing of the carriageway of Dufferin-street, St. Luke's, by two of the 'Hercules Street Cleansing Machines,' on the 28th ult.; the superficial area being about 1,980 yards, the water used was about 600 gallons, and the carriageway was effectually cleansed in nine minutes. The Hercules 'Cleansing Machine' (which is drawn by two horses) consists of a circular tank capable of holding about 300 gallons of water; there is a water spreader in front, and an India-rubber broom or revolving squeegee in rear, which picks up the slop caused by the spread of water and casts it to the side of the road, whence the liquid finds its way into the gullies, leaving the solid matter in the channels."

Not the least important of the results which are achieved by the use of this appliance is the avoidance of the process of strewing sand or gravel upon asphalt and wood thoroughfares. This practice has for its aim the prevention of horses' slipping. The gravel is soon ground to dust by the traffic, and comes to form in itself a source of nuisance, while it causes increased and rapid wear of our boots and shoes. Again, it is this sand and gravel which chiefly tends to choke up the sewers, and which necessitates the continual flushing of these mains. The use of the "Hercules" machine does away with the necessity for the use of gravel, and this in turn saves the sewers from the danger of blockage.

There is yet another point connected with the "Hercules Street Cleansing Machine" which deserves the attention of the public. Every one has noticed the frequent accidents to which horses are liable in towns where asphalt and wood form the materials of the thoroughfares. A very slight shower of rain, combined with the greasy nature of the mud which is thus formed, serves to convert an asphalt or wood-paved street into a veritable skating-rink, in so far as horses are concerned. Now the cleansing of these streets, which is an impossibility as things are, would prevent the distressing accidents to which we allude; only the cleansing must be of perfect nature, and calculated to remove perfectly and completely the often thin layer of mud and wet which constitute the true source of the mischief. This work, it seems to us, can alone be perfectly performed by the "Hercules" machine, since no other appliance known to us can compare with it in its perfect and speedy removal of street *débris*. It must also be borne in mind that the exigencies of street traffic in towns demand the quick despatch of all cleansing operations. The usual method by staffs of men, engaged in their occupation amid the roar and din of the traffic, simply defeats its own end; while the morning scouring of the roadways by aid of the "Hercules" would present the streets clean and clear for the day's traffic, and abolish a source of danger not only to horses, but incidentally to man himself.

That this latter excellency of the "Hercules" machine has already been proved is evident from the testimony of several experts. One testimonial, signed by no fewer than eight out of *forty-six* gentlemen representing the several committees and their presidents of the Society of Carmen and Contractors, Carriers and Jobmasters, and of the Drivers' Benevolent Association, and kindred societies (dated March 15th, 1889), states that "The Council of the Jobmasters' and Carriers' Association, in conjunction with a large committee of their members representing the various branches of the trade, has several times, amongst others in November, 1888, and on the occasion of the heavy snowfall of February, 1889, tested the Street Cleansing Machine of A. Hentschel, of Berlin, with respect to its efficiency and applicability for *completely cleansing the street* as is required from the *point of view* of the *prevention of accidents, cruelty to animals*, and *in the interest of all vehicular traffic*, and the undersigned gentleman have, as is set forth in their official reports,

arrived at the following conviction:—*With the 'Hercules Street Cleansing Machine' one is able*, as with none other of the hitherto known cleansing processes, *to cleanse carriage ways*, especially those laid with smooth stone, wood, or asphalt paving, *so perfectly*, viz., by the simultaneous using of sufficient quantities of water, the washing of the carriage way, the removal of the water thus used, the thorough drying of all slop and dirt residue. *That the danger of accidents to man and beast*, as also the disturbance of traffic, which likewise involves danger of accidents, such as attend the ordinary method of sweeping the streets, *are obviated in the best possible manner.*

As a further testimony to the merits of this machine, may be mentioned the important fact that Dr. Robert Koch, Director of the Berlin Hygienic Institute (and discoverer of the bacillus or germ of tuberculosis), one of the most famous of sanitarians, has done the inventor of the "Hercules Street Cleansing Machine" the honour of asking him to present a model of the appliance to be placed in the museum of the above-named Institute, which is connected with the Royal University of the German capital. In addition, we may add that the machine obtained the Vermeuil Medal at the Paris Health Exhibition, a testimony alike to the excellence of its construction and to its sanitary merits.

In speaking of the conservancy of our streets, Dr. George Wilson, in his "Manual of Hygiene," says, "One very important branch of scavenging . . . . is directed to the cleaning of streets and back courts, many of which are so badly constructed that it is next to impossible to avoid filth-accumulations. . . . . The surfaces of macadamized streets, again, are being constantly pulverized, and give off clouds of dust, containing large quantities of decomposing animal and vegetable matter, in dry weather, or are covered with liquid mud when it is wet; while paved streets present numerous interstices, which cannot be efficiently cleaned out, even when scrubbing-machines and flushing are both used."

The difficulties to which Dr. G. Wilson refers of cleansing streets, are precisely those which the "Hercules" machine thoroughly overcomes. Its powers of cleansing the most uneven thoroughfares are unexcelled and perfect; while for courts and pavements, however uneven, the hand "Hercules" is found to act most efficiently.

Summing up the advantages presented by the "Hercules Street Cleansing Machine," we may claim for it a perfection of action which is not lessened, it should be noted, by the often untoward and difficult circumstances under which the removal of snow, ice, and other forms of street dirt has to be undertaken. It is undeniable that at present the scavenging of our towns and cities is anything but perfectly carried out. Even when it is executed with a fair amount of despatch, its methods, as we have seen, are faulty, because they make no provision for preventing atmospheric impurity and consequent production of inconvenience, annoyance, and disease.

With such a machine as the "Hercules" at command, the authorities could not merely prepare the streets of a district each morning readily and quickly for traffic; but the operation could be repeated as often as might be found necessary without entailing much or any interruption to traffic. Add to this that the employment of the "Hercules" saves labour and expense, and we may rely upon it that the intelligent ratepayers of any district will see to it that the "Hercules" is obtained by the authorities; since, to freedom from disease, will then be added another gratifying result, namely, a saving of the pocket to the much-suffering British taxpayer.

THE CHEMISTRY OF THE HOUSE.

(SECOND SERIES.)

By Dr. Drinkwater, F.C.S.,
Lecturer on Chemistry in the Edinburgh Medical School.

THIRD PAPER.

THE AIR WE BREATHE.

(Continued.)

Ozone may be considered as nature's disinfectant, for it is so powerful an oxidising agent that it changes organic matter into harmless compounds, and thus prevents accumulation of dangerous material in our atmosphere. Although ozone in itself has a peculiar sickly odour, it is not present in the atmosphere in such a quantity as to render its presence perceptible to our noses. I have often heard the remark, when walking along the sea-shore, "How strong the ozone smells." Generally I have found the smell to be due to a bed of decomposing seaweed in the vicinity. If ozone were present in such quantities that we could smell it, instead of being a benefit, it would lay us all up with influenza, or symptoms closely approaching to those of that infliction. In some towns, periodical tests are made with the view of estimating the amount of ozone present in the atmosphere, but our present chemical knowledge hardly allows us to place much reliance on these tests.

One of the oldest, and perhaps the most worthless, is that known as the starch-paper test. It is carried out by exposing blotting-paper moistened with starch and a solution of potassium iodide to a current of air. If ozone is present it turns blue, and the depth of colour is taken as proportional to the amount present. Unfortunately, other substances are frequently present in air that would produce the same effect, and we are bound to admit that a satisfactory and accurate method of estimating this substance has yet to be invented. After thunderstorms it has been frequently noticed that there is an apparent increase of ozone, due to the action of the electrical discharge in the air, and this process can be imitated by subjecting oxygen in air to the action of artificially produced electricity, when the peculiar odour of ozone is at once detected, and its presence also shown, by any of the ordinary chemical methods. In 1867, Schoenbein noticed ozone in air after a heavy fall of snow.

Another substance which is present in minute and varying proportion in air is ammonia gas. This substance is a product of decay and putrefaction, both of animal and vegetable matter; in fact, when any substance containing nitrogen is decomposed, the tendency is for the nitrogen to combine with the hydrogen and form ammonia. We have already seen that in making coal gas the combination takes place, and that the watery liquor of the gasworks owes its value to the ammonia it contains.

Ammonia is composed of fourteen parts, by weight, of nitrogen, chemically combined with three parts, by weight, of hydrogen. It is a colourless gas with a strong pungent smell, known to most of us by our acquaintance with an ordinary smelling-bottle; it is slightly combustible, and very soluble in water; it is strongly alkaline and unites with acid bodies to form salts. Smelling-salts being carbonate of ammonia, *sal ammoniac* being chloride of ammonia, the former is sometimes called by its old alchemical name of *sal volatile*. The spirit of sal volatile of the druggist being simply a solution of the carbonate in weak alcohol, flavoured with some essential oils. Ammonia was a well-known substance, even to the earlier alchemists, and derived its name from the locality where

it was originally made by heating camels' dung, from which the salt sublimes. This crude manufacture was carried on in the Libyan Desert, near a temple dedicated to Jupiter Ammon, hence Ammon's Salt. There is, however, a strong probability that the name was originally applied to the common salt found in the soil in the district. Later on, ammonia was prepared by heating bones and horn shavings in a dry retort, and from this circumstance it was called spirits of hartshorn, a name by which it is still known in some places. As we have already seen in our articles on coal gas and paraffin, we now procure all our ammonia from the bye-products of these two great industries. Ammonia in its various combinations is used to a considerable extent in domestic chemistry: its solution in water is useful as a cleansing agent, for, like an alkali, it converts grease into soap, and makes it removable by water. Liquefied ammonia gas is used in the artificial production of ice, to which we shall refer in a future article.

The last of the main constituents of air in our list is moisture, and this is present in variable amounts. The higher the temperature, the more moisture the air is able to hold in suspension. We must frequently have noticed how, in a hot room, the walls and windows become bedewed with moisture, although the air in the centre of the room seems quite dry. The hot air holds the moisture in suspension, but in contact with walls and windows it becomes cooled, and cannot therefore contain so much. The excess is deposited on the cold surface. As regards the air of heated and crowded rooms, we have already explained how it becomes supersaturated with moisture; but external air takes it up from sea, lake, and river, and deposits it again as rain, snow, hail, and dew. The average amount of water present in air under normal conditions is 1·5 volumes per 100 volumes of air.

A very good proof of the way in which dry air takes up moisture can be obtained by watching the steam from a locomotive funnel. On a dry, warm day the steam rises, but does not travel far as steam; it speedily becomes invisible, and dissipates itself in the atmosphere. On a cold, moist day, on the other hand, the steam hangs about the ground, and travels onward for a considerable distance before we lose sight of it as visible steam. The cold air cannot take up so much moisture as the warmer air can. Warm air laden with moisture ascends and becomes chilled, the moisture becoming deposited as cloud. The actual condition of the water in a cloud has been a matter of speculation; at one time it was supposed that it was made up of a number of small, bladder-like, hollow particles of water, which remained suspended on account of the hollowness; but it can easily be proved that air enclosed in a bubble is heavier than ordinary air.

We have a case in point in an ordinary soap-bubble, so that that theory must be abandoned. Prof. Tyndall believes the water in a cloud to be in a fine state of division, like dust, and that it is suspended in air. In a similar manner, very high clouds are in all probability masses of ice-crystals. If a cloud meet with a cold surface, such as a hillside, or if it meet with a cold current of air, it deposits its water as rain. Most of the rain in these islands falls with a south-west wind, because south-west winds have passed over the Atlantic Ocean, and have become charged with moisture, which is readily deposited by meeting with cold east winds, or by a cold hill range. Those delicate, white, streaky-looking clouds, resembling strands of cotton-wool, floating lazily along, oftentimes in a direction opposite to the wind, are termed cirrus clouds, and are supposed to be the clouds made up of crystallized ice, because they produce *halo* effects, or coloured circles, when they interpose between us and the sun and moon. *Cirrus* clouds are always high in the air, sometimes as high as ten miles, and are moved by currents in the upper layer of air only.

We have hitherto only dealt with moisture deposited in the air, but cold snow or cold water is quite as capable of cooling air, and producing a deposit of moisture identical in every way with a cloud, except as to position. This is usually called mist or fog. The fogs of our large towns, however, are produced by water condensing round particles of soot and smoke suspended in air. So long as the particles are simply suspended in air they remain as fog, but by mutual attraction they run together and coalesce, when the larger drops become too heavy to remain so suspended—and rain is the result. But moisture is not always deposited as rain, it may be deposited as dew. Dew is moisture deposited on solid bodies by the cooling of these bodies in presence of moisture-laden air; and it will only be deposited on solid bodies, which quickly give off heat. As clouds prevent this throwing off of heat by radiation, as it is called, a clear night is more conducive to the formation of dew than a cloudy one. If, after the dew is deposited, the temperature falls below the freezing-point, we have hoar frost.

Snow and hail are the examples of moisture deposited below the freezing-point, although the cause of hail is not very well explained. Electrical action may have something to do with it, as hail-stones frequently accompany or follow a thunderstorm. There are various instruments in use to detect and measure the moisture in air. The very old toy of the model of a house with an old man and old woman standing in each door, the old man coming out for wet weather whilst the old woman comes out for fine, acts by the amount of moisture present in the air, and would of course be influenced to a certain extent by the weather. The working of this toy, for we can hardly call it anything else, depended on the untwisting of a piece of string or catgut under the influence of moisture, and thus swing out the old man's figure; whilst in drying again the string would twist up again, and swing out the old woman's figure.

Some years ago a so-called chemical barometer was brought before the public. It consisted of a piece of blotting-paper dipped in a solution of cobalt chloride; the substance is pink in a moist state and blue when dry, and if the air be dry the blue colour of the paper speedily shows itself. It indicated very readily the presence or absence of moisture; but beyond that it was not a weather glass, and could never be used as a barometer. The wet and dry bulb thermometer is a scientific instrument which is in constant use to indicate the amount of moisture in air. It consists of two thermometers, the bulb of one being in the usual condition, whilst the other is enclosed in a piece of muslin, the end of which dips into a vessel of water. If you dip your hands in water and blow on them, a sensation of cold is produced by the evaporation of the water which always absorbs heat. If you use a more volatile liquid than water, a greater sensation of cold is produced—try it, with a little eau de Cologne.

Now the greater the evaporation from the wet bulb of the thermometer, the greater the difference between the reading on it and the reading on the dry one; and the amount of evaporation possible depends entirely on the condition of the atmosphere—if the atmosphere be warm and dry, a large amount of water will evaporate to saturate the surrounding air; whilst if the air be charged with moisture little evapora-

tion will take place, and the thermometer readings will show little difference.

We have now considered the principal constituents of the atmosphere, and are in a position to consider in our next paper the properties of air as a whole.

MESSRS. CROSBY LOCKWOOD & Co. send us copies of their "Ambulance Leaflets," which are sold at the rate of 1s. 6d. per 100, and are intended for distribution among the public at large. We think, however, there is need for revision of these leaflets in some respects. The directions to receive the excreta of fever patients "in vessels containing carbolic acid, Condy's Fluid, chloride of lime, &c.," might be taken to mean that these disinfectants were to be mixed together. The word "or" should have been employed here. Again, it is absurd to direct that a sheet hung outside a fever patient's door should be wetted with Condy's Fluid, which is not a volatile substance, and is useless for aërial disinfection—at the best a defective process. Why also should the word "hæmorrhagic" have been used in the leaflet on "good meat?" The public would more readily understand the word "blood," or "bleeding." These leaflets appear to us to demand both revision and simplification of terms.

KARSWOOD RUBBER SILK.—This is a novel substance, protected by a patent, the property of Mr. E. G. Hughes, of Manchester. It is intended as a substitute for the ordinary oiled silk and gutta-percha used in surgery and medicine to cover lint and other dressings, and to prevent evaporation, &c. Mr. Hughes claims that it does not stick, can be washed, disinfected, and used again; is not affected by climate, tears readily, and avoids the necessity for scissors; is not injured by hot water, and can be smeared with antiseptics, and may be used as a germ-proof dressing. We are able to confirm these claims, and regard the Karswood Rubber Silk as much superior in every way to the ordinary gutta-percha or oiled silk. Its texture is firm and impermeable, and in respect of wear it is certainly most durable. We recommend this substance to the notice of all medical men and nurses, feeling convinced that once used, it will be always used by them.

"SOLUBLE SANITAS OIL" is the title of a new preparation made by the Sanitas Company and added to their already long list of valuable remedies. The great merit of this new preparation consists in its solubility and in its ready power and property of incorporation with the tissues. As a remedy for rheumatism, gout, and for kindred ailments, the "Soluble Sanitas Oil" is of great value. This fact has been proved and tested in a very full and able manner prior to its being offered as a public remedy. For the treatment of the prevailing catarrh and influenza this oil also offers a very admirable, simple, and safe means of treatment. The germicidal properties of "Sanitas" at large have for years been maintained in these pages as vastly superior to the poisonous and crude carbolic acid and other disinfectants. Hence, in the present form of a soluble oil, "Sanitas" has a new claim on our attention, such as we feel certain will commend itself at large to every intelligent medical man, and to the public at large as well.

LONDON NECROPOLIS, Brookwood, Near Woking, Surrey. The largest and most beautiful cemetery in England. Five hundred acres exquisitely planted. Simple funerals. Earth to earth coffins can be used if desired. Pamphlets gratis. Apply—SECRETARY, 2, Lancaster-place, Strand.—[ADVT.]

Personal Health

"Be timely wise;
With health all taste of pleasure flies."—*Gay.*

MEGRIM, OR SICK-HEADACHE.

THERE are several varieties of megrim, the best known forms being hemicrania, blind headache, and bilious headache. This complaint occurs more commonly in women than in men, the first attack often making its appearance about the age of ten. The seizures usually come on once or twice a month, and may last three or four days, totally incapacitating the patient from exertion of any kind. Sometimes they are accompanied by attacks of double vision, and sometimes they terminate with a sharp turn of sickness.

Not infrequently they are associated with neuralgia, and many remedies which are recommended for megrim are applicable to the treatment of nerve-pain. Susceptibility of attacks depends very much on the condition of the general health, and in such cases Kepler Extract of Malt has been found to be beneficial. The complaint occurs much more frequently when the patient is underfed, takes too little exercise, or suffers from constipation.

One of the best remedies for this complaint is Guarana, or Brazilian Cocoa, which should be given in five-grain doses three times a day. Another good remedy is Iodide of Potassium, one or two Tabloids of this drug being taken three times a day. Two Bromide of Potassium Tabloids, three times a day, are exceedingly useful. Chloride of Ammonium does good, especially when the neuralgic symptoms predominate. Two Antipyrin Tabloids, three times a day, often afford speedy relief; but these ought to be taken under the advice of a physician.

Some people obtain benefit by taking a powerful stimulant, such as a stiff glass of brandy and water; but this mode of treatment is not to be commended. A cup of strong tea or coffee in many instances proves much more beneficial.

When the pain is limited to one side of the head, a firm pressure of the hand or pocket-handkerchief will often prevent the symptoms from extending.

RUMINATION, OR "CHEWING THE CUD," IN THE HUMAN SUBJECT.

IN the *London Medical Recorder*, Dr. Ireland summarizes the contents of a paper on this curious phenomena by Dr. Sievers.

This author first gives a *résumé* of the different opinions upon rumination since 1618 (when Fabricius ab Aquapendente published the first case of this affection) until the present time. He recalls that since the appearance of the classical work by Adrien Dumur on the "Paralysis of the Cardiac Orifice or Merycism," the most recent authors see in this affection a nervous moving of the stomach accompanied by more or less diminution of the tone of the cardiac, or gullet orifice of the stomach. He thinks, however, that the true nature of rumination has not yet been thoroughly studied. Like Johannessen, to whom we owe the most detailed examination of this subject, Dr. Sievers says that before drawing any conclusion the details should be more minutely studied. But while the researches already made do not explain satisfactorily the nature of rumination, they furnish us with very important facts for the therapeutic treatment.

HEALTH says:—"We find it to be an excellent preparation, containing all the necessary constituents for that restoration of Nervous Strength which is so essential to the successful treatment of Wasting or Debilitating Diseases. The curative properties of the Hypophosphites in affections of the Respiratory Organs have been permanently established, and in all forms of Nervous Debility their action is marked and certain. The admirable Tonic nature of this Syrup has long been recognized by the Medical Profession, and we can confidently recommend it as a Powerful Invigorator of the Nervous System."

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CANCEROUS DISEASES.

TESTIMONIALS.

The following is from Dr. John Sheerer, St. Albans, Sept. 5th, 1888.

MR. JOHN M. YOUNG, *Manager Missisquoi Mineral Springs.*

DEAR SIR,—My mother, Mrs. Susan Sheerer, of Virgil, Cortland County, N.Y., was pronounced by Dr. Brunson, of said town, to have had a cancer in her breast in 1866. She used two cases of Missisquoi Water, and was cured. She is now eighty-two years old, and in splendid health. Yours truly,

JOHN SHEERER.

MISSISQUOI SPRINGS.

[An Extract from "The Monthly Homœopathic Review," May 1st, 1870.]

By Dr. TUTHILL MASSY.

The Missisquoi Springs of Franklin, County Vermont, are at present rather frequently prescribed in England for diseases where the knife was the severe medicine of other days: I therefore deem it my duty to lay before your readers the experience which I have gathered relative to these Springs.

* * * * * * *

The Spring A, Missisquoi Springs, is the one most generally exported, and which I have frequently prescribed. It gave great comfort to a lady who was suffering from a large open cancer in the right breast; cleansed the surface, relieved the pain, induced sleep, and diminished the tendency to bleeding, when applied externally, like simple water dressing, and taken in half-tumbler doses twice a day.

The benefits of the Spring A were very remarkable in a lady burdened with an ovarian tumour containing much water, with considerable abdominal tenderness. A few bottles always reduced her great size, and relieved her mind from the dread of an operation which was once proposed.

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The Spasms of Coughing so dreadful in Whooping Cough become less with each dose of the medicine.

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Dr. Sievers publishes three cases of rumination which he observed in private practice at Helsingfors. Besides these, so far as he knows, there are only three other cases of rumination mentioned in Scandinavia, and reported by Johannessen. On the first case described, the patient, aged twenty-seven, who had been a governess and sick-nurse, belonged to a very nervous family, though none of them suffered from insanity or any other grave disorder. She had previously enjoyed good health. She always ate very quickly, and did not properly masticate her food. It is now ten years since she commenced to ruminate her food, after a sea-voyage lasting from three to four days. Five, ten, or thirty minutes after eating, the food is collected in little balls in the mouth in order to be subjected to a second mastication. The patient seems quite at ease during rumination. After an ordinary dinner the rumination lasts from an hour and a half to two hours. If she moves about, or even if she is disturbed, rumination begins sooner, and is more active. Trying to restrain the process brings on such distress that the patient is compelled immediately to give in. During rumination she prefers to be seated. She leans forward, and at every mouthful which returns she lowers her head.

On scrutinizing the abdomen during the act of ruminating, one notices a dimple-like depression under the ribs. This is accompanied by an uneasy sensation passing from right to left. This does not extend further than about the cardiac orifice. The patient feels a slight shock, and the food returns to the mouth. The stomach was found to be moderately distended with air. There was no retardation of digestion, and no excessive secretion of gastric juice; but there was found to be unusual acidity of the contents of the stomach, owing to the increased production of hydrochloric acid. No lactic acid could be detected. For this patient Dr. Sievers prescribed a teaspoonful of Carlsbad salts before dinner and supper, and a teaspoonful of bicarbonate of soda after each meal. The diet was to consist of milk, eggs, meat, and a very little bread. Under this treatment there was a gradual improvement; and at the end of five weeks the rumination had entirely ceased, nor did it return after she had discontinued using the alkalies.

The second case was a priest sixty years old. He had always ruminated. His father, now eighty-eight, did the same. The process commenced after a meal, and lasted from two to three hours. He never tried to stop it, and does not think he could, as it goes on independently of his will. He did not desire medical treatment with a view to remove it.

The third case was a Jewess, thirty-five years old, of a highly neurotic family. Her father also ruminated; and one brother out of the family of nine occasionally did the same. She herself has ruminated from childhood. The food returns of itself. The act causes her no uneasiness, which would not be the case if she tried to resist it. She did not desire medical treatment. The contents of the stomach were found to be very acid.

MEDICINE stains may be removed from silver spoons by rubbing them with a rag dipped in diluted sulphuric acid, and washing it off with soap suds.

TICKET WRITERS' INK.—To one gill of black ink add half an ounce of gum. Let it stand in a warm place, and shake it frequently. When dissolved, if too thick, add more ink, if too thin, more gum. It will produce a fine glossy letter. You may treat blue, or red, or other coloured ink in the same way with an equally satisfactory result.

SKIN POWDER.

A VAST deal of harm is often done unwittingly by the use of impure powders, both to the skin of infants and of adults. These powders are more or less adulterated with colouring matters, or are themselves made of inferior materials; and the result is that in place of allaying skin-irritability, they not only cause it, but keep up the irritation.

The treatment of many skin-ailments, and especially of eczema, is carried out by the use of medicated powders applied, as a skin-authority directs, in the form of bags. For this method of employing powder, says the authority just quoted, we are indebted to the ingenuity of Dr. Unna. It consists in making long, narrow bags of thin cambric or muslin and partially filling them with powder, and then stitching or quilting them across, so as to prevent the contained powder from shifting to one or other end. These bags are then placed between opposing surfaces, as under the breast, in the folds of the groin, by the sides of the neck, or behind the ears. Every movement of the body or part causes the displacement of some of the included powder, and thus the parts can be kept, as it were, in an atmosphere of a drying or antiseptic material.

For use in such a simple and excellent fashion, Vinolia Powder is highly spoken of by many physicians; while for ordinary use, as a skin-dressing or as a cooling agent, this powder may be used with the certainty that its action will be both bland and emollient. Vinolia Powder is thus an appropriate adjunct to the Soap and to the Ointment of that name.

"BABYHOOD," for January, presents mothers and nurses with its usual variety of well-written and wholesome articles relating to the care of infants. Every mother should read this magazine; one merit among many being that it devotes considerable space each month to the mental and moral care of the "bairns."

A STREET DANGER.—It is long, says the *Lancet*, since the first protest was directed against the dangerous and untidy, but very common, practice of throwing down fruit skins at random in the public way. Yet, as if road and pavement, coated by the frosts of winter, were not slippery enough, we still see freely distributed upon them those treacherous fragments of orange-peel, apple-parings, and the like, which experience and precaution have condemned as the frequent causes of accident. Familiar as the evil is, its effectual correction is by no means a simple matter. Advice in abundance has been applied in vain. Carelessness will not be thus instructed, and the difficulty is not the less that the offender is often a child. Still, the matter is not hopelessly beyond a chance of amendment. Why should it not be subject to a judicious measure of police control, at all events when blame can be attached to some responsible person? We think it reasonable that every householder should clear the snow from the approach to his dwelling. Is it out of the question that consumers of fruit be likewise required, on pain of a moderate fine, to refrain from littering the streets with its dangerous waste?

SPECIAL NOTICE.—The BEST STIMULANT for dietetic and other purposes is the "SKERRYVORE" (Registered) Blend of Fine Matured Scotch Whiskies, certified of the UTMOST PURITY by Mr. E. G. Clayton, F.C.S., Member of the Society of Public Analysts. Sold only by JOHN TWATT, 36, Argyle-place, EDINBURGH. Price 20s. per gallon, bottles and cases included.—[ADVT.]

The Family Circle

"The child is father of the man."—*Wordsworth.*
"In bringing up a child, think of its old age."—*Joubert.*

INJURIES TO THE EYE FROM LIME AND CHEMICALS.

NOT long since the writer, in a single week, met with (in a New York dispensary) three different cases of injuries to the eye caused by lime, while numerous other cases of the same nature have been under his observation and treatment. In very many of these cases the tendency to recovery was greatly impeded by the amount of time that elapsed before the patients were placed under proper treatment, while in not a few instances the existing conditions were greatly aggravated by improper treatment—administered by druggists and other laymen—and it is with a desire to dispense a better knowledge of how such cases should be treated until the services of a surgeon—or, better, of an eye-surgeon—can be obtained, that this article has been written. Nevertheless, the cases herein cited shall be followed carefully through the entire course of treatment, feeling that they will prove of some value to others more interested in the methods of treatment than the general reader.

Burns of the eye from lime, fresh mortar, acids, hot fluids, &c., are not rare accidents, and are generally of serious importance, causing severe inflammation, excoriation, and sloughing of both conjunctiva and cornea, while in healing they are quite sure to occasion cicatricial adhesions and contractions. Not infrequently the proper substance of the cornea is affected so violently as to cause complete opacity, with total loss of vision in the eye affected. The desirability of immediate treatment in such cases is at once apparent, and in fact it is sometimes this alone which can preserve the sight, while in all cases the sooner proper treatment can be obtained the less serious will be the symptoms, the more speedy the recovery, and the more complete the cure. Thus it seems obvious that the ultimate effects arising from the intrusion of these substances into the eye, depend on the degree of causticity, the quantity, and the length of time that they are allowed to remain in contact with the conjunctiva.

Common mortar falling into the eye, if quickly removed, often acts only as a severe stimulant, causing increased redness, swelling, pain, and lachrymation, followed by a conjunctival catarrh. But even when speedily removed, grave conditions sometimes result. Quicklime and slaked lime thrown into the eyes act as powerful caustics, and are apt to produce—especially if not speedily removed—total loss of vision through complete opacity of the cornea, or even suppuration or thickening and protusion of this part. Hot and caustic fluids—such as boiling water, molten metal, nitric, sulphuric, and other strong acids—act rapidly upon the eye, and occasion inflammation of a highly dangerous character. The diabolical and effective work of the "vitriol thrower" is familiar to all, and especially so to those of us who are called upon to attend their unfortunate victims.

The treatment of the conditions which have been thus briefly enumerated will now fitly engage us. Whenever lime—whether it be mixed with sand to form mortar, or combined with certain chemicals in a mixture known as "whitewash," or in any state whatsoever—be found in the eye, it should be instantly removed. The removal of all particles not firmly adherent should be accomplished by means of a small pledget of absorbent cotton, saturated with olive oil. If the cotton cannot be readily obtained, a piece of linen or fine muslin may be substituted. The surgeon will wind the cotton on the end of a probe, but if rounded into a thin, flexible wad, it will probably be more beneficial in the hands of the unskilled, and quite as efficacious. The eye is to be opened, the lids everted one after the other, so that their inner surfaces may be carefully examined, and all foreign substance—except those which are firmly adherent—are to be removed from the conjunctiva by the gentle use of the oiled cotton.

The lower lid is easily everted by making traction downward upon the skin of the lid with the tip of one of the fingers of the left hand, while the patient rolls his eye well upward. In this manner the conjunctival surface will be exposed, and any substances collected there may be readily removed. The eversion of the upper lid requires more manipulation, but is scarcely more difficult of accomplishment. Make the patient direct his eyes—not his head—downward; grasp the central eyelashes between the thumb and first finger of the left hand, and pull the lid a little downward and away from the eyeball; then place a small pencil, or probe, or the edge of a stiff card, held in the right hand, against the outer surface of the lid, well back from its edge—beyond the upper limit of the tarsal cartilage; then press gently downward upon the surface of the lid with the instrument held in the right hand, and at the same time turn the edge of the lid upward by means of the lashes held in the left hand. The instrument is now removed from behind the lid, which is now held in its everted position by the thumb of the left hand, while examined and cleaned. Upon releasing the lid, direct the patient to look upward, when it will resume its natural position. The examination of a child's eye is often very difficult, and the surgeon usually finds it necessary to hold the child's head firmly between his knees, while the body is supported in the lap of an attendant. The necessity of thoroughly cleansing the eye can scarcely be overestimated.

The writer has seen a severe conjunctivitis, attended with swelling, catarrh, and pain, caused by the presence of a small hair in the eye—the conditions improving at once upon the removal of the little offender and the employment of a mild astringent wash—and if so small a body can provoke so great an irritation, how much more damage can be effected by the presence in the eye of such significant substances as we are now considering. Very often patches and particles remain too firmly adherent to be removed with cotton or rag, but these must also be removed, as they will eat their way into the tissue and become incorporated with it. To this end, olive oil should be dropped into the eye, to loosen as much as possible the embedded particles and allay irritation, and the forceps, the spud, or the curette should be employed. In the inner canthus and the culde-sac substances will be found which must be dug out carefully and thoroughly.

When all visible particles of the lime have been removed—and not until then—the eye should be copiously washed with water, which will wash away any remaining particles and relieve congestion. If the burn is of any considerable extent, there is quite sure to be adhesion of the lid to the globe (called symblepharon) as the process of repair goes on. The difficulties of these adhesions, and the necessity for surgical interference, are always in proportion to their extent. In some cases, the tendency to symblepharon can be lessened by making occasional traction upon the lids, and thus breaking up the incipient

adhesions; but these adhesions and contractions are quite sure to form, regardless of the many methods suggested for their prevention, and they can be dealt with at a future time. The prognosis is often very favourable, and the operations of Teale and Arlt are performed with good results, though their consideration cannot now detain us.

The therapeutical treatment of these cases is scarcely of less importace than the surgical. The inner surface of the lids should be kept well smeared with boric acid ointment (boric acid one drachm, to vaseline one ounce), and if the pain is intense, it should be relieved by the occasional use of a few drops of a four per cent. solution of hydrochlorate of cocaine. The use of atropine to dilate the pupil is always proper, and especially so when the cornea is involved. Ice-cold cloths are to be applied over the eye, to control the conjunctivitis and allay pain, and after the active symptoms have subsided the subsequent catarrh and weakness can be benefited by the use of mild astringent lotions, such as a saturated (four per cent.) solution of boric acid.

The eye should not be bandaged, as such a procedure increases the irritation by keeping the irritating mucopurulent discharge from the conjunctiva: on the contrary, the eye should be carefully cleansed by means of a pledget of absorbent cotton and the free use of water or boric acid solution, as often as the occasion may require. Particles of potash (commonly caustic) and nitrate of silver (lunar caustic), and other like substances which exert a corroding and disintegrating action upon the tissues, must be immediately extracted from the eye with the forceps, or any other instrument that is at hand. Water must not be employed until all has been removed, as even the mixture of the tears with such substances increases their destructive effects. Burns of the eye caused by melted metal are usually less severe than those occasioned by caustics, since the metal readily solidifies, and afterwards possesses no continuously destructive chemical action.

Nitric, sulphuric, acetic, and other acids can do great mischief, the ulcers caused by these and all like substances being damaging to sight in the ratio in which the cornea is involved. If the acid has just entered the eye, it should be at once neutralized by the use of a solution of soda (one drachm to four ounces), or a mixture consisting of one part of lime water to three of water. The eye should then be bathed freely for considerable periods of time with cold water, and the pain, conjunctivitis, and keratitis which occur should be treated by means of cold applications, astringent lotions, &c., as already explained. Very troublesome symblepharon may result. Vinegar, spirituous liquors, and other stimulating fluids not infrequently occasion severe inflammations. Ammonia in the eye usually causes much pain, but seldom produces more than a superficial ulcer. Red pepper produces intense burning, but does not cauterize. In these cases, the prompt and free use of cold water is the proper treatment.

"Influenza: its Prevention, Symptoms, and Treatment" is the title of a sixpenny pamphlet, published by Mr. H. K. Lewis, of 136, Gower-street, London, W.C., and written by Dr. J. E. Viney. We are pleased to find in this timely *brochure* that Dr. Viney gives plain directions for the treatment of influenza, and rises superior to the grandmotherly ideas of many medical men, who endeavour to dissuade everybody from acquiring a knowledge of domestic medicine. For those at a distance from medical aid, and, indeed, for every intelligent person, this pamphlet will be found invaluable.

RUSHLIGHTS.

It was formerly customary, owing to want of means for stall-feeding cattle during the winter, to slaughter all superfluous stock during the month of November, and pickle the flesh for subsequent consumption.

A home industry arising from this prodigious storing of provisions was the manufacture of rushlights or dips, for the servants' use. While wax candles illumined the dining-room, the drawing-room, and bedchambers, these others were alone employed in the kitchen. All the superfluous fat was set aside to make them at the time of the annual slaughter; but if the supply ran short, it was readily augmented by the contents of the dripping-pan, which no mistress of that period dreamt of considering as her cook's perquisite.

On this point modern mistresses might with advantage imitate their grandmothers, who knew that granting perquisites encouraged dishonesty. Amongst the kitchen utensils, the "grease-hood" (pr. grisset) held a prominent place, this being a long, shallow, iron vessel, resembling an exaggerated ladle, used for melting the tallow. Old-fashioned pairs of tongs may yet be seen which were used in conjunction with it. These had in the centre of each plate a groove, through which the liquid grease ran into the pan beneath, when, as was sometimes customary, they were heated red-hot, and used to squeeze pieces of fat. This was considered wasteful and extravagant, and was adopted only by the careless who had neglected to store their rushlights in time, and so were compelled to make some hurriedly for immediate use.

In summer, the very old and the very young, with other feeble persons, were employed in cutting rushes, the best kind for candle-making being the common, soft, *Juncus conglomeratus*. These grow best by river banks, and in the marshy pastures. The longest and plumpest were selected, and deprived of the outer green covering, a process facilitated by first steeping them in water. One very narrow strip alone was left from top to bottom as a support for the pith, or two if the dip was intended for a night-light, when it burned slowly and with a feeble flame.

After being peeled, the rushes were bleached on the grass, and then dried in the sun. Six pounds of grease were allowed to a pound of rushes; these last required to cool between each immersion in the boiling fat, and were dipped again and again until of sufficient size. Where bees were kept, a small quantity of wax was added to the tallow, the candles acquiring great consistence thereby; but mutton fat was considered to answer the same purpose. The rushlight thus formed burned from half an hour to forty minutes, on an average.

A curiously-shaped candlestick was used to hold them, and similar ones are still employed for the purpose by some of the Connaught peasants. Machine-made candles, however, are now so cheap, and paraffin oil is in such general use, that only in the remotest districts does one see a home-made rushlight.

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This pamphlet, now being issued in its Fifth Edition, forms a complete refutation of quackery of all kinds, and is a safe and reliable guide, from the medical standpoint, to all young men. Every Youth should read this pamphlet as a guide to the safe conduct of life in a moral and physical sense.

Healthy Houses

"A happy home must be a healthy home."—*Anon.*

THE WARMING OF SCHOOLS.

By Dr. A. N. Bell.

The different modes of warming may be divided into three classes: Open fireplaces, stoves, and furnaces, steam and hot water. The most universal of all mistakes in regard to warming in cold climates—no matter what the mode adopted — is to estimate the amount of fuel and heat-producing capacity solely with reference to warming. Ventilation is equally essential — aye, more—and it cannot be effected without expenditure of fuel. And the smaller the space to be warmed—the relative capacity to the number of occupants—the larger the proportion of heat required for ventilation, for the manifest reason that the air has to be changed more frequently.

1. Open fireplaces are only adapted to small schoolrooms in mild climates. The heated air from the open fireplace or chimney-grate is available to the apartment for only about 12 per cent. of the total amount of heat produced; all the rest passes up the chimney. Hence, in cold weather, the amount of heat available from this means for warming the floors and walls, or reaching the remote corners of a room, is insufficient. And as Rumford put it, many years ago, "While the draughts chill one part of the body, the rest is roasted by the fire in the fireplace, and this cannot but be injurious to health."

The special merit of the open fireplace is good ventilation. The heated chimney from its use is the most effectual of all exhaust shafts for carrying off impure air; and it is frequently an important addition to the means of ventilation to schoolrooms heated by other means. Some recent inventions in open fireplace grates, by which the grate sets well out into the room and combines with a radiating surface and fresh-air supply at the back, are great improvements in the economy of heat, and fulfil, in a remarkable degree, the best conditions for ventilation, either alone, when the weather will admit of it, or as adjuncts to furnaces.

2. Close stoves utilize from 85 to 90 per cent. of the heat produced, and lose through the smoke-pipe only about as much as the open fireplace saves—10 to 15 per cent. And herein lies the striking difference between the relative healthfulness of the atmosphere heated by a close stove and an open fireplace. The amount of air which passes through a close stove, heated with a brisk fire, is on an average equal to only about one-tenth of the capacity of the room warmed, and consequently such stoves require, if unaided, ten hours to effect a change of atmosphere in every such apartment. Thus stagnant and heated, the air becomes filled with the impurities of respiration and cutaneous transpiration.

Moisture, too, is an important consideration. The air, whether within doors or without, can only contain a certain proportion of moisture to each cubic foot, and no more, according to temperature. At 80 degs. it is capable of containing five times as much as at 32 degs. Hence, an atmosphere at 32 degs., with its requisite supply of moisture, introduced into a confined place and heated up to 80 degs., has its capacity for moisture so increased as to dry and wither everything with which it comes in contact: school furniture cracks and warps; seams open in the moulding, wainscotting and doors; and ophthalmia, catarrh, and bronchitis are common complaints in schools where insufficient attention is paid to the condition of the atmosphere; while consumption and other chronic pulmonary diseases are thereby promoted.

But this condition of the air is not peculiar to close stoves. *It is equally true of any overheated and confined atmosphere*—no less applicable to the heat of steam-radiators than to that of stoves and hot-air furnaces.

The chief advantage of close-stove heat is, that the warming of the air is more quickly accomplished, more easily and more economically kept up than by any other means.

Sometimes, by the scorching of dust afloat in the atmosphere, an unpleasant odour is evolved by stove and furnace heat, which is erroneously supposed to be a special indication of impurity, caused by burning the air; it is an indication of excessive heat in the stove. The air cannot be said to burn, in any true sense of the word, for it continues to possess its due proportion of elementary constituents, notwithstanding such accidents. Such is the close stove and its dangers under the most unfavourable conditions.

But stoves have been greatly improved in recent years. "Open fire stoves" combine the advantages of the open fireplace and the close stove, provide for fresh air, and economize heat. The important improvements in stoves of this kind have not only well-nigh supplanted the old open fire-grate in supplying all that was ever claimed for it, but excel it in all the requisites for economy and comfort. These are provided with shafts conveying fresh air from the outside of the house to the bottom of the fire-grate and around a radiating surface of an inner shell. But the most important condition for the protection of health in stove heat is provision for the removal of impure air. This is a much more difficult task than it is to obtain that which is pure.

The experiments of Pettenkofer have shown that under the common conditions of the atmosphere a very considerable exchange of gases takes place through dry plastered walls, brick and stone. But the cold felt by proximity to the wall or windows in a warm room is never due to this cause. It is due to the loss of heat by radiation from the body toward a colder surface. Yet every observer is aware of the force with which the outer air presses in through all crevices around doors and windows when great differences exist between the temperature of the outdoor and indoor air; and the greater, if the indoor air is provided for means of escape with its impurities.

The essentials for healthy stove heat are a brick-lined fire-chamber, *exhaust-flue* for foul air, and provision for fresh air-supply.

A brick lining is requisite for the double purpose of preventing overheating and for retaining heat in the stove. For the supply of moisture the means are simple and easy of control, but often inadequate.

An efficient air-shaft may be fitted to the commonest of close stoves by simply enclosing the smoke-pipe in a jacket—that is, in a pipe of two or three inches greater diameter. This should be braced around the smoke-pipe, leaving about an inch opening all around, and carried down to within six inches of the floor, or resting upon the floor on four prongs, left by cutting out the end in four deep notches. At its entry into the chimney a perforated collar should separate it from the smoke-pipe. For a stove with short horizontal smoke-pipe passing through a fire-board, the latter should always be raised about three inches from the hearth. A smoke-pipe thus

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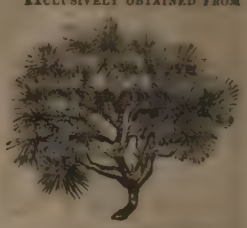

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OTHER PROCESSES WASTE

developing the

DELICIOUS FLAVOR and AROMA

and forming a

DRINK FOR A PRINCE

at less than a farthing a cup.

jacketed or fire-board so raised affords an efficient air-shaft for the escape of foul air.

The *introduction of fresh* air is a comparatively easy matter. In default of special provision, a strip of board three inches wide under the window-sash, closely fitted, provides for an inlet between the sash at the middle with a direction to the top of the room, and therefore not likely to subject any one to draught, while it promotes a free circulation of the air in the room.

(To be concluded.)

A NEW antiseptic called Rotterine has been in use for some time past, and seems to have a future before it. The belief has been steadily gaining ground in Germany that a good antiseptic effect may be obtained by mixing a number of very small quantities of various antiseptics, such slight amounts being taken of each that they would singly have no effect, although their combined action is very intense. Similar results have been obtained in the case of creolin, which consists of a mixture of different hydrocarbons in minute quantities; and the Sanitas preparations are also based on this theory. Rotterine owes its name to its originator, Dr. Rotter, and is composed as follows: Forty-five grains each chloride and sulphocarbolate of zinc, twenty-seven grains boric acid, two and a half grains chloride of sodium, six grains salicylic acid, one grain each citric acid and thymol. The whole dissolved in a pint of water. The various ingredients are about a tenth of the strength they would require to be to act alone, but thus combined are said to exert an astonishing antiseptic influence, being more effective than a one in a thousand solution of corrosive sublimate. The solution is non-poisonous. It has the advantage of cheapness, and also that the mixture can be pressed into tablets for carrying about.

DISEASE OF THE HEART.—In diseases of the heart which persist for a long time and finally end—as a very large proportion of them do—in slow decline and a lingering death, dropsy always sets in. In the late stages it is a most intractable symptom, and adds greatly to the suffering experienced. In the treatment, physicians have been wont to depend largely upon a diet of milk, which, in cases where it is well borne and can be persisted in, always acts well. But there are many patients who, for various reasons, cannot be kept on a milk diet for any length of time. To some it becomes abhorrent after a while, and others cannot really digest it properly, simple food as it is. And, besides this, a milk diet is unsuited to no small proportion of patients affected with cardiac diseases. We have reference to those who cannot be kept quiet, but who insist upon being up and about, often in the open air, if not engaged in light duties. Prof. German See, of Paris, has long been engaged in study to learn what elements in milk rendered it such an admirable agent to stimulate the kidneys, increase the flow therefrom, and hence prove of such great service in dropsies. As a result of his investigation he is convinced that the one important element is sugar of milk. Acting upon that theory, he selected twenty-five patients with heart disease, in all of which there was more or less dropsy. To each he gave 100 grammes of the sugar of milk a day, dissolved in two quarts of water. In all these cases a marked effect upon the kidneys was felt within twenty-four to forty-five hours, and the dropsies diminished rapidly, and almost all such swellings disappeared altogether after a series of treatments lasting from six to eight days. This discovery is likely to prove one of the most important which has been made in the medical world for years.

Popular Science Papers

"Blessings on Science! When the Earth seemed old,
When Faith grew doting, and our reason cold,
'Twas she discovered that the world was young,
And taught a language to its lisping tongue."

—Charles Mackay.

SOAPSTONE.

ON the summit of one of the prettiest groups of hills that lie north of the divide between the Fourche and Hurricane Creeks, in Saline County, Arkansas, at an elevation of 500 feet above Little Rock, are situated the soapstone quarries. The soapstone and serpentine are principally embraced in three hills, each about 100 feet high, over 200 feet wide, and three-quarters of a mile in length. Soapstone being one of the primary rocks, the depth of these deposits is unknown, but believed to be inexhaustible, some quarries being now worked to a depth of 300 feet. This property has been prospected sufficiently to show the great value and immensity of these deposits.

Prof. C. D. Smith, geologist for North Carolina, in his report on the property, says, "The soapstone and serpentine and slates are if I may so express it, grouped together in one locality, so that one mining camp will be sufficient for them all, and one terminus or station will serve them all alike. It is unusual to find such a grouping of valuable materials so essential in our progressive civilization."

So much soapstone is used in manufacturing establishments for various purposes that the supply is not equal to the demand. Soapstone will not corrode, but remain always pure. It is composed of 62 per cent. silica and 34 of magnesia, two of the most durable substances known when exposed to the atmosphere or fire. It is practically without expansion, and a better radiator than any metal. Soapstone, as a finish or covering for walls or ceilings, is come into use. It takes a high polish, is pearl grey in tint, is said to possess the best possible surface for painting, either in oil or water colours, and what is very desirable, will neither crack nor chip. It is claimed for it that it is a non-conductor and non-absorbent; that it can be washed without injury; nails can be driven into it without damage; when subjected to heat, moisture, and chemical fumes it gives no smell, and does not turn yellow with age, thus being especially adapted to churches, schools, hospitals, and hotels. To soapstone just now is being given special attention as a pigment for protecting steel vessels against corrosion. Its latest application, however, is that for a paint for protecting the insides of iron and steel ships and other structures, which difficult problem this valuable material has been the means of solving.

Soapstone is also used for preserving structures built of limestone and other stones liable to disintegrate under atmospheric influences. Soapstone as a paint, being transparent when ground by itself, shows only the added colour, thus forming a foundation on native woods before varnishing, as also a coating on polished steel and iron to preserve them from corrosion. It is suitable for all inside and outside work, and wherever materials are exposed to the variable changes of the weather, owing to its waterproof merits, as also being a fireproof paint. This soapstone in foundry facings is far superior to the present commercial soapstone facings manufactured in Eastern cities. As this soapstone is free from grit, it is especially desirable for hollow wares or other light castings requiring a superior finish, as it leaves the

castings very smooth and of a bright appearance, as the metal will not run or burn at the time of pouring.

Soapstone manufactured into steatite grease or oil is a perfect lubricant, having a good body and entire freedom from any impurity, and is not affected by acids, steam, heat, or cold, and is invaluable when there are "hot boxes." Soapstone is used in polishing marble and glass for mirrors. Soapstone is especially adapted for a make-weight in soap and paper factories, and where adulteration is used, as it is not poisonous. Soapstone as a base for cosmetics in some points excels the best imported French talc, which commands a high figure. Soapstone for the manufacture of porcelain, Parian, China, Bohemian, and other wares, is claimed to be the best and cheapest material in the United States for such purposes. In China it is used to form the household gods, hence it has been called the figure stone. When carefully manipulated, it will make the handsomest articles by whatever name known, and will take the richest colours, either blue, crimson, or gold, and when retaining its own colour, a pure, transparent white.

Soapstone slabs are extensively used for manufacturing into laundry, bath, and acid tubs, and in chemical laboratories, as also in the manufacture of different varieties of stoves, mantels, linings, heaters, caskets, assay furnaces, gas burners, and wherever acids are used, or there is a necessity to retain heat, or where a fireproof article is necessary. Soapstone, as a material for firebricks—handsome, knife-edged, making close joints, free from expansion or contraction, and preserving the integrity of the furnace walls—has no superior in the market. This soapstone is especially adapted for furnace linings where ores are reduced by fluxes, and as a material for crucibles. In the manufacture of pressed bricks for buildings this material has no equal, for it leaves a smooth, polished face, sharp edges, and can be manufactured in all colours, from a cream to black, making a valuable brick for its lasting properties as well as for its highly ornamental finish.

Manufactured into enamelled brick, it is a success; having the suction necessary to retain the enamel, it is equal to any material known, requiring but little enamel to cover surfaces. Pressed, moulded, and cast into any form, as terra cotta or other architectural work, there are but few materials which can be worked to such advantage and with such profits. Thus, this soapstone—remaining perfectly white after being worked in the finest wares and exposed to the greatest heat, enduring the highest temperature without fusing, at the same time acquiring a semi-vitreous texture and peculiar translucency and toughness, when enamelled retaining a beautiful gloss in its own colours, giving a handsome finish to every article it is moulded into, remaining strong, lasting, and free from checks—needs only skilled labour and machinery to establish a vast industry giving employment to thousands.

"DID your son take the valedictory in college?" said a gentleman to a lady, who was enthusiastically praising the ability of her offspring. "No, indeed, he didn't," she replied, with pride, "he didn't take anything. He is the healthiest boy you ever saw."

CHEMICAL ANALYSIS.—DR. DRINKWATER, Lecturer on Chemistry in the Edinburgh Medical School, undertakes the Analysis of Water, Foods, Wall-Papers, and of all other products and articles connected with Household Health and Commercial Interests. Terms on application to Dr. Drinkwater, Chemical Laboratory, 41, Chambers-street, Edinburgh.

Jottings from the Journals

"Th' ingredients of health and long life are
Great temperance, open air,
Easy labour, little care."—*Sir Philip Sydney.*

The Value of Cycling.—Walking for many is productive of much discomfort, and it is hard to imagine any good result accruing from exertion, which causes the middle aged, those approaching thirty, to complain of exhaustion, tender feet, swollen ankles, shaken knees, and not uncommonly a bad headache into the bargain. Now for these poor creatures undoubtedly cycling may be a blessed prescription; it is a capital exercise for the invalid, and an invaluable way to keep the robust in health; it must be added that "cycling" in this article mainly refers to the use of tricycles. Tricycles have a great and obvious advantage over bicycles; they are suitable to both sexes, and may be used with satisfactory results by man, woman, and child. Little exists requiring learning, and two minutes suffice to acquaint the novice with the arts of steering, putting on the brake, and pressing the treadles with sufficient force to obtain the required motion, especially if the beginner has not daunted himself by reading any of the sadly faddy and elaborate directions given in manuals for novices. It is perhaps well not to overdo it at first; a beginner ought to limit himself or herself to two spells of half an hour each for the initial attempts on the tricycle, gradually increasing with the learner's growing facility and enjoyment of the exercise. It is impossible to lay down, in a general account like the present, any hard or fast rule as to distances and time of accomplishing given distances to be attempted by an average man or woman. The records of athletes are as surprising on the tricycle as they are in every other modern field of championship; they are to be taken by ordinary cyclists as horrid warnings, and by no means to be considered worthy of emulation. Roughly speaking, a middle-aged man or woman, on an average machine, with a fair road and no opposing wind, will find seven miles an hour a pleasant rate of progression. From twenty to five-and-twenty miles will not be excessive if taken in two halves, with a suitable rest intervening. Personal experience points out clearly that the pleasantest of all exercise, and the least tiring, is a combination of walking and cycling. A person can cycle ten miles, take a brief walk, or do a little shopping, and return ten miles to his starting-point, without experiencing the least fatigue. Tricycling and walking, of course, bring into play different sets of muscles; when the same muscle may he used in both processes, it is in a somewhat different way. This accounts for the rest experienced after cycling or walking, or *vice versâ*. In cycling the whole weight of the trunk of the body is taken off the lower limbs, while the concussion caused by the descent of the foot on the ground is prevented—a great saving; during any ordinary effort on a cycle there is no strain on the muscles of respiration. The work is done by the lower limbs, and without strain of tendon or friction of the sole of the foot, or weariness of the ankle and knee. Whenever a rider feels stomach-exhaustion from riding, is unable to take food with appetite, or digests slowly after the ride, he is told as plainly as words could tell him that his nervous tone, at the centre of life, the stomach, is exhausted, and that he had better do no more until he has rested completely.—*Provincial Medical Journal.*

Effects of Heat on the System.—A series of articles on tropical and subtropical climates has been published by Dr. Cullimore in the *Medical Press*. Regarding the effects of heat on the human system the author says that they differ materially according to the duration of residence, and, therefore, also, as regards travellers and permanent residents. At first, and particularly in the hot season, the functions of respiration and circulation are considerably increased, as is also the vital capacity of the lungs. The circulation, as shown by the greater power and frequency of the pulse, is excited to a febrile or semi-febrile condition, the temperature of the body being in some instances heightened, at least for a time. The appetite and spirits are good, and the capacity for enjoyment and travel as a rule remain unimpaired. After a certain sojourn or period of residence, ranging from six months to a couple of years, this state of exhilaration and excitement ceases, and the newcomer begins to approach somewhat the condition of the indigenized white man, and if he remains, say for nearly a lifetime, without disease, that of the native himself. He has seen some few Europeans in India who could with impunity set the sun at defiance, and one, at least, who was not a teetotaler, who could do so without the aid of umbrella or hat. The vital capacity and respiratory movements become lowered, the pulse though perhaps more frequent, loses its tension, the heat of the body assumes the normal condition, the plumpness and rotundity, the weight, the firmness of the body diminish, and the excretions, as the urea and carbonic acid, decrease. The action of the skin is increased. That of the liver and bowels at first are increased, though there are many exceptions, constipation being not uncommon among new arrivals, particularly on the West Coast of Africa. The amount of urine is lessened, the process of digestion endeavours to adapt itself to the novel surroundings, the appetite gradually becoming languid and in need of stimulation. There are, however, here also many exceptions. There is prostration of nervous energy and lack of mental activity, not, however, due so much to the influence of heat, unless severe and continuous (above 84 degs. F.), as to heat and excessive moisture. In subtropical and tropical Australia, though the heat is considerable, it is dry, and the go-aheadism and mental capacity of the colonists are proverbial. In damp, low-lying countries the reverse is the case, for not only are the natives degraded and apathetic, but horses and sheep languish and die. As regards active disease, while we recognize great and continuous heat, particularly when associated with extreme moisture, as its main predisposing cause in the tropics, it is to the chilling effect of variations and oscillations of temperature, generally accidental, relatively greater in tropical than in temperate climates, of heavy rains, inundations, extensive marshes, and uncultivated jungles, and, according to some authorities, emanations, therefrom, that is to be attributed the main exciting cause of disease. Sudden falls and high diurnal ranges of temperature, cold winds blowing, and perhaps rain falling, on a sleeping and perspiring body, rapid alternations of heat and cold, are more favourable to disease than a climate with a steadily high thermometer. Suitable clothing and careful attention to the erection and site of the dwelling, to sanitary and individual precautions and management, will, however, in great measure enable us to prevail against the former, while with the latter we are almost powerless to contend. We may alleviate its attendant discomforts, and even by exercise and attention to diet, &c., stave off its ultimate results, but eventually tropical anæmia, with or without a certain amount of acclimatization, with attendant racial deterioration, lays hold of the system, and the healthy European, or, at all events, his children, assumes many of the mental, moral, and physical traits of the half-caste, and even of the native himself.

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Pure Air in Churches.—Probably all churchgoers have at one time or another experienced the irresistible tendency to drowsiness or somnolence that begins to be felt about the beginning of the sermon, and is only finally dissipated on quitting the church for the open air. Many people are inclined to assume rather hastily that pulpit oratory is to be held accountable for the creation of the soporific influences of the hour; but medical men and others who have considered the subject must be aware that, in nine cases out of ten, it is the closeness and heat of the atmosphere, and not the length of the sermon, that is at fault. Because churches are, as a rule, large and roomy edifices, architects assume that ventilation is unneeded, and vicars and rectors are content to hold the same belief, although they are even greater sufferers by the foul state of the atmosphere than the congregation. Clergyman's sore-throat, hoarseness, and voicelessness are directly induced by the constant and continued efforts of speech in a heated and relaxing atmosphere, and the faculties of the congregation are dulled and blunted by the same cause. Church windows are not made to open; and, even if they were, unless the entering air is directed upwards to a considerable height, it falls upon the heads of the congregation, and complaints of draughts are made to the churchwardens, which promptly secure the closing of the windows. Most churches are heated by stoves or hot-water coils, but in very few cases is there any arrangement for admitting fresh air to come into contact with the heated surfaces of pipes or stoves before passing into the church. Exhaust ventilators in the roof are practically unknown in churches; consequently the foul and heated air never escapes, and after service as the heated air cools it descends, and a fresh congregation rebreathes the used air of its predecessors. In this respect churches are even worse off than theatres, where the cubic space per head is far less, for all theatres have sunlight burners in the roof of the auditorium, which act very efficiently as exits for foul air. Although different systems commend themselves to different persons, we are inclined to advocate, in winter, the admission of fresh air warmed by contact with hot-water coils beneath gratings in the floor, and numerous exhaust ventilators in the roof provided with rings of gas jets to keep up the temperature of the escaping air. In summer fresh air should be admitted by revolving panes in the window so as to secure an upward direction, the exhaust ventilators being also kept in action. If places of worship were adequately ventilated, "church headache" would soon become as little known as "theatre headache" now is, thanks to the regulations that the latter places of amusement are now subjected to.—*British Medical Journal.*

THE following explanation for a pupil's absence was received by a New York city school teacher:—"Miss Blank: It is not nesetcr for my darter to come to scule, for she don't lean nothin' this is the six scule she has been to she miteswell stay to home."

IT is well known, says *Nature*, that whales can remain a long time under water, but exact data as to the time have been rather lacking. In his northern travels, Dr. Kückenthal, of Jena, recently observed that a harpooned white whale continued under water forty-five minutes.

IMPORTANT ANNOUNCEMENT.

A NEW VOLUME BEGAN WITH THE NUMBER FOR FRIDAY, OCTOBER 4th, 1889.

BONUSES TO SUBSCRIBERS TO "HEALTH."

HEALTH, as our readers are aware, may be obtained of all Booksellers and Newsagents, and at the Railway Bookstalls, on the day of publication. It may also be ordered from the PUBLISHER, 2, Paternoster-square, London, E.C., who will send the journal, post free, for a year, on receipt of postal orders for 10s. 10d.

As many of our readers who live in remote districts prefer to obtain HEALTH from the Publisher direct, and as we are desirous of increasing the already large number of subscribers who give us a yearly order for the journal, we offer the following FREE GIFTS and BONUSES to all who subscribe to HEALTH for one year or longer :—

(1.) To each Subscriber who remits 10s. 10d. to the Publisher, entitling him (or her) to receive one copy of HEALTH, post free, for one year, we shall present a copy of Dr. Andrew Wilson's work, entitled "A Manual of Health Science" (Longmans & Co.), value 2s. 6d.

(2.) To each subscriber who remits 21s. 8d., entitling him or her to receive two copies of HEALTH weekly, post free, for one year (or one copy for two years), we will present Dr. Richardson's "Ministry of Health" (Chatto & Windus), value 6s. The copies of HEALTH so ordered may be posted to separate addresses.

(3.) To each person who subscribes 32s. 6d., for three copies of HEALTH, post free, weekly, for one year, we will present the volume by Dr. Richardson mentioned above, and also the handsome, illustrated book entitled, "Studies in Life and Sense," by Dr. Andrew Wilson (Chatto & Windus), value 6s.—being a free gift of the total value of 12s.

The bonus last mentioned will also be presented to anyone who succeeds in obtaining three yearly subscribers to HEALTH, and who remits to the Publisher the sum of 32s. 6d., together with the names and addresses of the persons to whom the copies are to be posted each week.

As the literary gifts above-mentioned constitute books containing solid and reliable information regarding health and other matters of popular scientific interest, it will be seen that the above scheme, while intended to increase our already large circulation, also offers distinct advantages to new subscribers who guarantee by their subscriptions a year's support to this journal. All communications regarding subscriptions and other purely business details connected with HEALTH should be addressed directly to the PUBLISHER, 2, Paternoster-square, London, E.C., and *not to the Editor*.

CIRCUMCISION NOT OF SANITARY ORIGIN.—The idea that the ceremony of circumcision among the Jews was of a sanitary origin is strenuously denied by Mr. C. Roberts, of London, who thinks it was of the nature of a sacrifice, the prepuce being the easiest, and, indeed, the only part of the body of an infant which could be removed with safety. It is quite possible it is remotely connected with phallic worship, which is common enough at the present day in India and other parts of Asia. It is practised by other races than the Jews—some African tribes—who are not far advanced in sanitary knowledge. Mr. Roberts insists that the operation of circumcision should not be undertaken except for very good reason.

HAIR RESTORATIVE.—A journal says that a solution of chloral hydrate of a strength of five grains to the ounce of water, will clear the hair of dandruff, and in many cases of baldness will cause a renewal of growth of hair. Arnica oil, well rubbed into the scalp, in small quantity, three times a week, will also be beneficial in the latter class of cases.

A SUBSTITUTE FOR GLASS.—The new translucent substance intended as a substitute for glass has been adopted for some months in some of the public buildings of London, and various advantages are claimed for it, among these being such a degree of pliancy that it may be bent backward and forward like leather, and be subjected to very considerable tensile strain with impunity; it is also almost as transparent as glass, and of a pleasant amber colour, varying in shade from very light golden to pale brown. The basis of the material is a web of fine iron wire, with warp and weft threads about one-twelfth of an inch apart, this being enclosed, like a fly in amber, in a sheet of translucent varnish, of which the base is linseed oil. There is no resin or gum in this varnish, and, once having become dry, it is capable of standing heat and damp without undergoing any change, neither hardening nor becoming sticky. Briefly, the manufacture is accomplished by dipping the sheets edgewise into deep tanks of varnish, and then allowing the coating which they thus receive to dry in a warm atmosphere. It requires somewhat more than a dozen of these dips to bring the sheets to the required degree of thickness, and when this has been accomplished, the material is stored for several weeks to thoroughly set. This fabric might be worth testing for those parts of studios through which a subdued light only is desired. As the substance contains no resin and is practically solidified balloon varnish, there may be hopes of comparative durability.

Our Letter-Box

"Conference [maketh] a ready man."—*Bacon.*

NOTICES TO CORRESPONDENTS.

All Communications for the Editorial Department (including Books for Review, Specimens of Sanitary Appliances, &c.), to be addressed to "THE EDITOR OF HEALTH," 2, PATERNOSTER-SQUARE, LONDON, E.C. *Those intended for the Publishing Office to be sent to* MR. A. P. WATT, THE PUBLISHER, *at the same address.*

RULES FOR CORRESPONDENTS.

OWING to the mass of letters which reaches us each week, we respectfully direct the attention of Correspondents, desiring replies in the LETTER-BOX DEPARTMENT of HEALTH, to the following rules :—

1. All questions are answered free of charge in the columns of HEALTH. A limited space only, is available for the insertion of replies each week.
2. All letters must be legibly addressed to "The Editor of HEALTH, 2, Paternoster-square, London, E.C.," *and to no other address.*
3. Questions to which answers are desired by post, are so replied to solely at the Editor's discretion. If no answer is sent by post, the query will be replied to in the "Letter-Box" columns of HEALTH. A stamped addressed envelope must accompany all queries to which a private reply is desired.
4. Addresses of physicians and surgeons will, as heretofore, be forwarded FREE to Correspondents on their enclosing a stamped addressed envelope for reply.

5. Correspondents are requested to write on one side of the paper only, and to make their inquiries as brief as may be consistent with clearness.

6. From the necessity of sending HEALTH to press early in the week, no Correspondent can be replied to in the "Letter-Box" columns in the same week in which the inquiry is received. Replies crushed out of any issue will be found in the succeeding number.

7. No Post Cards must be used in sending queries. Violation of this rule deprives the sender of the privilege of a reply.

QUERIES AND ANSWERS.

REPLIES: GENERAL, SANITARY, AND MEDICAL

[Readers of HEALTH will kindly note that when back numbers of the journal are desired, the letters containing such requests and stamps for the numbers should be addressed to the PUBLISHER of HEALTH, 2, Paternoster-square, London, E.C., and *not to the Editor*.]

AVON.—You should procure a Burroughs & Wellcome's Chloride of Ammonium Inhaler, and use it frequently, avoiding chill and cold after using it. Internally, you also require a tonic—take Inman's Syrup of the Hypophosphites (advertised in our pages); a teaspoonful after meals, in water, thrice daily. You might also try syringing the nostrils, as you have been accustomed to do, with Condy's Fluid added to tepid water, so as to make the solution of a light claret hue. If not cured, write again.

AMOR.—Clothe warmly, and after your meals take a dessert-spoonful of the Kepler Cod Oil with Malt. This will brace you up; while at bedtime you should inhale the vapour of a pint of very hot water, to which a little of Stern's Pumiline Essence has been added.

NORTHERN.—You might try the effect of taking one five-grain Tabloid (Burroughs & Wellcome's) of Antipyrin at bedtime, and note its effect upon the pains and their recurrence. Take one tabloid for a few nights running, and see what is the result. For scurf, wash the head with Vinolia Soap once every ten days, and use a soft brush only. Keep your hair short, and rub into the roots a little glycerine of borax. If not cured, write again.

J. E. JACKSON.—You can hardly compare Folkestone air with that of the Yorkshire wolds; Barnet is not bracing enough; and, in our opinion, the Surrey hills would be the most likely to suit your case. You would get much the same environment (say, at Hindhead) as in Yorkshire; allowing, of course, for the difference in the southerly direction. If we can assist you further, let us know.

M. BAINES.—1. If the hair-roots have not been destroyed you should use a hair-stimulant. Try that ordered to "G. S. E." in last week's HEALTH. 2. Cod liver oil could only act in such a case as a general nutrient of the system, but it might be tried. Apply Vinolia each night as an ointment possessing qualities which may aid you as you desire.

R. L. S.—Only a surgeon can advise you after examining the nose. Consult one of the surgeons in your town.

A. MAILER.—We cannot assist you fully unless you are frank enough to state how you acquired your ailment. You must have acquired infection in some form or other. Let the occasion be a lesson to you, and see that you give up all such practices as those you describe. For the rest, take plenty of vegetable food, eat wholemeal bread, give up tea and coffee, and take Scott's Midlothian Oat Flour in place thereof. In this way avoid constipation, and, in addition, use an injection made by adding a teaspoonful of Condy's Fluid to a tumbler of tepid water, thrice daily. You must also rest as much as possible.

DISCOMFORT.—Apply Vinolia as an ointment to the part; and, internally, take as a sedative twenty grains bromide of potash, in water, occasionally. If, as we expect, your state is due to a nervous condition (rather than to a local one), the bromide may relieve you. If not cured, write again.

TRANMERE.—Your best plan is to take all the winter, after your meals, a dessertspoonful of the Kepler Cod Oil and Malt, and to use a Burroughs & Wellcome's Chloride of Ammonium Inhaler regularly when your head-cold is troublesome. These measures will cure the symptoms you name. Pay no attention to the pamphlet sent you.

G. M. DALZIEL.—There is no need for you to be despondent. It should be your pride to exert your self-control; otherwise, you can lay no claim to manliness. Every day will render your task the easier; so persevere, renounce all such habits, and read the pamphlet "A Lecture to Young Men" (post free, for 1s. 1d., from Mr. Renshaw, 356, Strand, London, W.C.), and you will find encouragement and advice in its pages.

J. W. WELMSLOW.—See and follow advice given to "G. M. Dalziel" above.

WHITLEY.—In the first case, let the food be very light, and consist, for a time, chiefly of strong meat soups (made with Brand's Beef Essence), white boiled fish, milk peptonized with Fairchild's Powders, and light puddings. Fry's Cocoa may be given in place of tea and coffee. Rest after meals is necessary, and suppers are to be avoided. The powders ordered to "Rodeo" in Health No. 353 should also be tried. If not cured, write again. 2. All discharges from the ear indicate disease, which at any time may become a source of danger. See advice given to "F. Fairley" in last week's HEALTH. Give the boy half a teaspoonful of Inman's Syrup of the Hypophosphites, after meals, in water. If this advice does not cure him, take him to a surgeon who makes a speciality of ear diseases.

C. G. R.—1. You should consult Mr. Pulvermacher, 194, Regent-street, W., on the subject; and take his advice regarding a belt. 2. Stern's Pumiline Essence used in an inhaler.

STELLA.—1. Your question has been answered over and over again in these pages—we reply, once more, "yes," for most people; only the oil can be taken ordinarily, and with safety, in greater quantity than the butter. 2. Yes: a good oil undoubtedly.

JAMES HARVEY.—Avoid the straining—that is the simplest fashion. See advice given to "J. M. S. S." in last week's HEALTH. Hot salt (applied dry in a stocking) to the part will relieve the pain.

COURTMASHERRY.—Your wisest course is to consult a surgeon, and take his advice. No one can benefit you without a personal examination. Electricity, in such a case as yours, would prove of no avail, as there is a much simpler treatment, regarding which a surgeon will advise you. You should wash the parts every day, as a matter of common cleanliness. See the pamphlet recommended to "G. M. Dalziel" in the present number.

RINGWORM.—Remove the hairs *around* the affected patch, and paint the spot with sulphurous (*not* sulphuric) acid night and morning. You would be the better, also, of taking an internal tonic, by way of bracing up your constitution. Try a teaspoonful of Inman's Syrup of the Hypophosphites, thrice daily, after your meals, in water (see advertisement in our pages).

WITHEROW.—1. Take twenty grains bromide of potash in water when your symptoms trouble you. If this does not cure you, substitute for the bromide two five-grain Tabloids (Burroughs & Wellcome's) of Antipyrin. 2. No such saucepan could possibly be made. How could you possibly prevent the meal from burning without personal attention?

MRS. HAMILTON.—Take after your meals twenty drops of Fer Bravais in water, thrice daily; and drink freely between meals of Vichy or Kronenquelle Water. Avoid much butcher-meat, and take white-boiled fish, milk-puddings, and like diet of light kind. Try Van Houten's Cocoa in place of tea. Let us hear how you are after a trial of this treatment.

C. S. F. P.—We shoud advise that the patient avoid standing for long periods, and should sit and rest with his feet elevated. The foot of his bed might also be slightly elevated, to favour the return flow of the blood in the veins. An elastic stocking should also be worn, and constipation avoided. See advice given to "J. M. S. S." in last week's HEALTH.

JOHN MCLEAN.—Rest after your meals, and avoid potatoes and new bread for a time. Take Van Houten's Cocoa in place of tea and coffee; and after meals, when flatulence troubles you, take five drops pure Terebene on a piece of sugar.

E. G. J.—Apply to the Medical Battery Co., 52, Oxford-street, W., and you will receive the information you seek. There is no danger in such a case as that you name.

EDWARD MAY.—Merely a sprain. Use Stern's Pumiline Liniment as an external application (see advertisement in our pages), and bath the part with hot water in which Pumiline Extract has been dissolved.

NEVETS.—If you suffer no pain or inconvenience, we should say decidedly let well alone. One side is always larger than the other. Consult a surgeon if you feel in any way anxious; nothing can be done save by personal examination of your case.

NASAL.—See advice given to "Nariz" in last week's HEALTH. You only suffer from slight congestion of the nose-membrane, the result of cold.

CHARLES LILBURN.—Use the lotion ordered to "G. S. E." in last week's number; keep your hair very short for a time, and wash it once every ten days with Vinolia Soap and tepid water. Use soft brushes only, and avoid all hard and small combs. If not cured, write again.

A. Y. T.—Try the effect of taking a little good claret to dinner daily. Alcohol assists assimilation in persons of your habits.

E. E.—A good hair-wash is: Glycerine, two ounces; tincture of myrrh, one ounce; eau de Cologne, one ounce; tincture of cantharides, half an ounce; and distilled water, twenty-four ounces.

COXSWAIN.—Wear very large and roomy boots, and cover the bunion with soap plaster spread on kid or wash-leather. A good lotion is that made by adding two drachms tincture of arnica to eight ounces of water. This lotion is to be applied on lint, covered with oiled silk to prevent the lotion from evaporating, and should be continued for two or three days at a time. The tincture of veratum viride painted on a bunion, if inflamed, may also do good.

Tired Brain

Horsford's Acid Phosphate,

A brain food. It increases the capacity for mental labour, and acts as a general tonic. It rests the tired brain, and imparts thereto new life and energy.

Dr. ED. T. JOHNSON, M.R.C.S., 121, Rice-lane, Walton, Liverpool, says: "I have used it with very good results in cases of overtaxed and overworked brains, one in particular, a schoolmaster, where it acted like a charm."

Dr. JNO. LAMBE, M.R.C.S., West Villa, Shurdington, No. Cheltenham, says: "It produced good results in sick headache and brain prostration, tranquillizing the irritation, giving comfortable sleep."

Descriptive pamphlet post-free on application to
Rumford Chemical Works,
Providence, R.I., U.S.A.

Beware of Substitutes and Imitations.

CAUTION.—Be sure the word "Horsford's" is printed on the label. All others are spurious. Never sold in bulk.

E. SELL.—We do not think you need any medicine; but a pill containing two grains sulphate of quinine may be tried, taken half an hour before dinner daily.

E. TAYLOR.—The following is a good cough mixture: Chlorodyne, one drachm; ipecacuanha wine, one drachm; syrup of squills, one drachm; glycerine, to make up two ounces. Label: "A teaspoonful in a little water at intervals."

A CORDING.—To make hair-wash powder, take powdered borax, one pound; camphor, one drachm; oil of bergamot, twenty drops. Mix these ingredients thoroughly.

S. P. R.—You should peruse the article on "Acne and Blackheads" published in No. 199 of this journal, and follow out the treatment given in that paper.

FOAM.—Superfluous hairs can only be satisfactorily (and painlessly) removed by electricity. Send 4½d. in stamps to the Publisher of HEALTH, and obtain a copy of No. 149 of this journal, and read the article therein given on this method of removing hairs. We can send you address of a specialist who removes hairs in this way on receipt of stamped addressed envelope.

C. BEARD.—We do not know the firm you name; but you should try Mellin's Food, which is undoubtedly one of the best for infants that is made.

ALPINUS.—The following may be tried: Carbonate of magnesia, five grains; powdered white sugar, five grains; powdered borax, four grains. Mix to form a powder. One powder to be taken twice daily, an hour after meals, for acidity.

M. E.—The heartburn may be relieved by your taking Vichy Pastilles. Another remedy is: Bicarbonate of soda, one drachm; tincture of calumba, six drachms; dill. water, to six ounces. Mix. A tablespoonful to be taken every three hours. Avoid all acids, fruits, sugar, pastry, &c.

KALY.—Wash the parts affected night and morning with Bayley's Spermaceti Soap and tepid water; a little ointment composed of one part iodoform added to ten parts benzoated lard, to be rubbed on the affected spots after washing, twice daily.

E. COX.—You may derive much benefit from inhaling the vapour of a pint of hot water to which Stern's Pumiline Essence has been added. Internally, take fifteen drops Fer Bravais in water, after your food, thrice daily, as a general tonic.

E. OTTIWELL.—We recommend you to take fifteen drops of Fer Bravais in water, after your meals, thrice daily. You can continue this tonic for, say, a couple of weeks at a time, and then resume it after an interval, if you have not cured your ailment.

KING FRAME.—Dahl's Cakes and Cascara Cordial—dose of latter, twenty drops, in water, once daily. A teaspoonful of glycerine, used as an enema, is also a capital and safe remedy.

OXONIAN.—Write to Mr. Pulvermacher, 194, Regent-street, London, W., for prospectus of his galvanic belts, and give one of these appliances a full and careful trial.

M. B. C.—Have a pill prepared containing two grains permanganate of potash, to be made up with kaolin. Take one of these pills twice daily, after your food.

EAGER.—A depilatory is made as follows: Sulphide of sodium, three drachms; lime, ten drachms; starch, ten drachms. Make a paste with water; apply to the skin for two minutes only; then scrape off. To be used with care. But you should note that no depilatory will prevent the hairs from growing again. Electricity alone can permanently remove hairs. Read article in HEALTH No. 149.

A WELL-KNOWN STATION-MASTER CURED By Wearing Harness' Electropathic Belt.—Mr. J. B. Carne, Station-master, London, Brighton & South Coast Railway, Clapham Junction Station, S.W., writes:—"I beg to thank you very much for the great benefit I have derived from wearing your Electropathic Belt, which you sent me some months ago. I used to suffer with lumbago and pains in the back, both of which have now ceased. I have highly recommended the treatment to many friends. —(Signed) J. B. CARNE."

IF YOU ARE SUFFERING

From any slight derangement, with the cause of which you are acquainted, you will find that Harness' Electropathic Belt affords a perfect means for the self-application of Curative Electricity. It is pleasant to wear, produces no shock or discomfort whatever, and is absolutely certain to do good in every case. The thousands of testimonials in favour of Harness' Electropathic Belt speak for themselves. A large number of them are published in book form (gratis and post free); but sufferers are invited to call, if possible, at the Company's Electropathic and Zander Institute, 52, Oxford-street, London, W., and convince themselves by inspecting the originals. If you have any reason to fear that your sufferings are serious or complicated, you are recommended to call and avail yourself of a free personal consultation; or, if you reside at a distance, to write for a private "Advice Form," which will be sent you by post (with pamphlet) free of charge.

BLAUD'S PILLS.

Prepared in strict accordance with Dr. Blaud's recipe, and prescribed throughout the world for ANÆMIA, &c.

Messrs. INMAN & Co. devote great care to the making of these Pills, and they direct attention to the importance of their being fresh, and properly made if the full benefit is to be derived from taking them. A Box containing twelve dozen sent post free on receipt of Fourteen Penny Stamps.

WILLIAM INMAN & CO., Ltd., Chemists,
8, SHANDWICK-PLACE, EDINBURGH.

BUNTER'S NERVINE

Cures TOOTHACHE Instantly.

Prevents Decay, Saves Extraction. Sleepless Nights Prevented. Neuralgic Headaches and all Nerve Pains removed.

Dr. ANDREW WILSON, F.R.S.E., &c., writing in *Health*, says: "'BUNTER'S NERVINE' has stood the most severe test. For many years it has been the favourite household Remedy for TOOTHACHE and kindred ailments of NEURALGIC character. It contains nothing of a deleterious nature, and should claim an honoured place in every family medicine chest."

BUNTER'S NERVINE. Sold by all Chemists, 1/1½.

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IS THE MOST SIMPLE AND

PERMANENT STOPPING for DECAYED TEETH.

Any one can easily prepare and place it in the cavity of the Tooth in a soft state, and in a short time it becomes a perfectly hard and white Enamel, forming, as it were, a part of the original substance of the Tooth.

All Chemists, 1/6. *Post Free*, 19 *Stamps, by Proprietor.*

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Tooth Polish

Will Purify and Beautify the Teeth with a Pearly Whiteness; Polish the Enamel; Destroy Tartar and all Living Germs; and Keep the Mouth in a Delicious Condition of Comfort, Health, Purity, and Fragrance. It is not a Powder or Soft Paste that will scatter over clothing and soil the toilet, but a Dental Paste of stiff consistency, non-gritty, and Absolutely Pure. May be carried in the pocket in any climate of the world, without injury or losing its virtues.

Price 1/- *Sold by Chemists, Perfumers, &c., or sent post free by Proprietor.*

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Tooth Wash

FOR THE TEETH, GUMS, AND BREATH.

A PURE, PERFECT, AND REFRESHING FLUID DENTIFRICE.

A few drops in water used daily will thoroughly Cleanse, Beautify, and Preserve the Teeth; Polish the Enamel, prevent Tartar, Destroy all living "Animalculæ." It is Absolutely Pure and Harmless to the Youngest child or most delicate constitution.

Sold by all Chemists, Perfumers, &c., 1/- per Bottle, or sent post free by Proprietor,

Proprietor: ALFRED WILSON, 422, Clapham-road, London, S.W.

AVOID RISK OF CHILLS IN THE BATH BY USING

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A REAL COMFORT.

RECOMMENDED BY MEDICAL MEN.

MAKES THE BEST CARRIAGE MAT.

CAUTION.—These Mats are distinguishable from all others in being made of Solid Cork Wood, one inch thick, and are unequalled for warmth and comfort.

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10, Carlton-place, Glasgow.

A WONDERFUL MEDICINE.

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BEECHAM'S PATENT PILLS. ST. HELENS LANCASHIRE

ARE universally admitted to be worth a Guinea a Box for Bilious and Nervous Disorders, such as Wind and Pain in the Stomach, Sick Headache, Giddiness, Fullness and Swelling after Meals, Dizziness and Drowsiness, Cold Chills, Flushings of Heat, Loss of Appetite, Shortness of Breath, Costiveness, Scurvy and Blotches on the Skin, Disturbed Sleep, Frightful Dreams, and all Nervous and Trembling Sensations, &c. The first dose will give relief in twenty minutes.

Every sufferer is earnestly invited to try one box of these Pills and they will be acknowledged to be

WORTH A GUINEA A BOX.

For females of all ages these Pills are invaluable, as a few doses of them carry off all humours, and bring about all that is required. No female should be without them. There is no medicine to be found equal to Beecham's Pills for removing any obstruction or irregularity of the system. If taken according to the directions given with each box they will soon restore females of all ages to sound and robust health. This has been proved by thousands who have tried them, and found the benefits which are ensured by their use.

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Sold by all Druggists and Patent Medicine Dealers everywhere.

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Quickly correct all irregularities, remove all obstructions, and relieve the distressing symptoms so prevalent with the sex. Boxes, 1s. 1½d. and 2s. 9d., of all Chemists. Sent anywhere on receipt of 15 or 34 Stamps by the Maker,

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Is guaranteed to do more good than Six Similar Rubbings with any other Compound Oil, Embrocation, Liniment, or Patent Medicine advertised for the cure of similar maladies, and the Proprietors of these preparations are challenged to refute this statement if they can.

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Is no American quackery, no mere mixture of Hartshorn and Oil, or other worthless compounds. It is NOT a Patent Medicine, but it is a

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which penetrates to the root of the disease, and thus eradicates the malady which compounds fail to relieve.

DON'T DELAY! DON'T BE DECEIVED!

It has CURED SCORES of the WORST CASES!!
IT WILL CURE YOU!!!

Our Proofs.

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Two Surgical Operations Failed to Relieve.

MRS. GRAINGER, 33, Bridgman-street, Walsall, spent sixteen weeks in a hospital suffering torture from Acute Sciatica; she underwent two frightful operations—in one of them having a large piece of flesh removed—but without deriving the least benefit, and was discharged as incurable. She obtained a bottle of BAYLEY'S WOOD OILS, used it according to directions, obtained immediate relief, and by the time the first bottle was completed a cure had been effected.

Cured with Half a Bottle.

MR. A. SALT, Hammersmith, had a severe attack of Chronic Rheumatism in his knee and ankle, and for five months had been unable to walk without the assistance of two sticks. The pain in his limbs was so bad that they felt as if they were broken; scores of remedies had been tried, but had done him no good. As a last resource he determined to use BAYLEY'S WOOD OILS, and, to his great surprise and satisfaction, after the first dressing he obtained relief; and before half the bottle had been applied he had lost all pain, and was able to resume his usual work, and to walk as well as ever.

Another Case. "Almost Paralyzed with Pain."

MR. FREDERICK CHAMBERS, Oxford-street, Pleck, says: "I suffered for eight weeks acute torture in every limb, sometimes being almost paralyzed with pain. I had tried scores of liniments, recommended by friends, without obtaining any relief, but after using one bottle of BAYLEY'S WOOD OILS, the pains left me, and I now feel better than I have done for months. I strongly recommend all sufferers from Rheumatism to use BAYLEY'S WOOD OILS, and you are at perfect liberty to mention my name in testimony of its great value."

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